CLAIMS

1. A method for manufacturing a microsieve provided with a membrane with a cross-flow surface and an opposite surface connected by pores extending between the cross-flow surface and the opposite surface, which method comprises the steps of

- etching the pores in a first predetermined spatial pattern,
- providing a second predetermined spatial pattern of height variations in the cross-flow surface of the membrane, so that within a vicinity of a majority of the pores, at a distance of less than ten pore sizes from each of the pores in the majority, at least one of the height variations is provided.

2. A method according to claim 1, wherein positions of the height variations on the membrane are defined photolithographically.

3. A method according to claim 1, wherein an amplitude of at least one of the provided height variations within a distance of less than ten pore sizes from each respective pore in the majority is at least one pore size of the respective pore.

4. A method according to claim 1, wherein within a distance of less than two pore sizes from each of the pores in the majority at least one of the height variations is provided with an amplitude of at least one-third pore size.

5. A method according to claim 4, wherein at each of the pores in the majority, within a distance of two pore sizes, not more than one height variation with an amplitude of more than one pore size is provided.

6. A method according to claim 1, wherein at a distance of less than one pore size from each of the pores in the majority at least one of the height variations is provided.

7. A method according to claim 1, wherein the height variations are provided by providing precursors of the height variations on a substrate,

subsequently depositing the membrane with a substantially uniform thickness onto the substrate, and subsequently etching away the substrate at least over a part of the surface of the substrate in which the majority of the pores are situated.

8. A method according to claim 1, wherein the height variations are provided by etching away or depositing material at selected locations on the membrane.

9. A microsieve provided with a membrane with a cross-flow surface and an opposite surface connected by pores between the cross-flow surface and the opposite surface, a spatial pattern of height variations in the cross-flow surface of the membrane, so that in a vicinity of a majority of the pores, within a distance of less than ten pore sizes from each of the pores in the majority, at least one of the height variations is present.

10. A microsieve according to claim 9, wherein an amplitude of at least one of the height variations at a distance of less than ten pore sizes from each of the respective pores in the majority is at least one pore size of the respective pore.

11. A microsieve according to claim 9, wherein at a distance of less than two pore sizes from each of the pores in the majority at least one of the height variations is provided with an amplitude of at least one-third pore size.

12. A microsieve according to claim 11, wherein at each of the pores in the majority, within a distance of two pore sizes, not more than one height variation with an amplitude of more than one pore size is provided.

13. A microsieve according to claim 9, wherein at a distance of less than one pore size from each of the pores in the majority at least one of the height variations is provided.

14. A microsieve according to claim 9, wherein against the opposite surface of the membrane, supporting structures are present which leave the

membrane clear at least over a part of the opposite surface in which the majority of the pores are situated.

15. A microsieve according to claim 9, wherein the membrane on the opposite surface further has height variations which at least partly run along with the height variations on the cross-flow surface.

16. A microsieve according to claim 9, wherein the opposite surface is substantially flat, so that the height variations correspond substantially completely to thickness variations in the membrane.

17. A filtering apparatus provided with a first supply and drain channel for a cross-flow of fluid, a second supply or drain channel for drain of filtered medium or supply of material that is to be added to the fluid, and a microsieve with a membrane, which microsieve is coupled to the first supply and drain channel, so that the cross-flow fluid flows from the first supply channel to the first drain channel along a cross-flow surface of the membrane, which microsieve is coupled to the second supply or drain channel, so that filtered fluid can flow from the opposite surface of the membrane to the second supply or drain channel or the material can flow from the second supply or drain channel to the opposite surface of the membrane, and wherein the membrane contains pores which extend between the cross-flow surface and the opposite surface, as well as a spatial pattern of height variations in the cross-flow surface of the membrane, so that in a vicinity of a majority of the pores, within a distance of less than ten pore sizes from each of the pores in the majority, at least one of the height variations is present.

18. A filtering apparatus according to claim 17, wherein an amplitude of at least one of the height variations at a distance of less than ten pore sizes from each respective pore in the majority is at least one pore size of the respective pore.

19. A filtering apparatus according to claim 17, wherein at a distance of less than one pore size from each of the pores in the majority at least one of the height variations is provided.

20. A filtering apparatus according to claim 17, wherein against the opposite surface of the membrane, supporting structures are present, which leave the membrane clear at least over a part of the surface of the opposite surface in which the majority of the pores are situated.

21. A filtering apparatus according to claim 17, wherein the membrane on the downstream surface further has height variations which at least partly run along with the height variations on the cross-flow surface.

22. A microsieve provided with a membrane layer and a supporting layer, wherein the membrane layer is divided into mutually separate first and second membrane surfaces, with pores in each of them, and wherein the supporting layer is structured into a supporting structure which supports the membrane layer between the membrane surfaces and at the membrane surfaces has openings which correspond to circumferences of the membrane surfaces and continue to the membrane surfaces, wherein the membrane surfaces are elongate in shape, and longitudinal directions of the first membrane surfaces run substantially parallel relative to each other, longitudinal directions of the second membrane surfaces run substantially parallel relative to each other, and the longitudinal direction of the first membrane surfaces makes an angle different from zero with the longitudinal direction of the second membrane surfaces.

23. A microsieve according to claim 22, wherein a plurality of first membrane surfaces are situated substantially in line with each other in the longitudinal direction of the first membrane surfaces, and in each case between successive first membrane surfaces of the plurality, groups of second membrane surfaces are situated.

24. A microsieve according to claim 22 or 23, wherein the angle between the longitudinal directions is between 45 and 135 degrees.

25. A microsieve according to claim 22, 23, or 24, provided with sieve fields of a first and second kind, respectively containing a plurality of exclusively first membrane surfaces and exclusively second membrane surfaces, the sieve fields each having at least substantially the shape of a parallelogram, within which a plurality of membrane surfaces are included parallel to each other and extend from a first edge of the parallelogram to a second edge.

26. A microsieve according to claim 25, wherein the sieve fields are so arranged that immediately adjacent sieve fields in each case are of different ones of said kinds.

27. A microsieve according to claim 25 or 26, wherein the parallelograms each have an edge which runs parallel to a bisector between the longitudinal directions of the first and second membrane surface.

28. A microsieve according to any one of claims 22 to 27, wherein the longitudinal directions of the membrane surfaces lie substantially along a crystal direction of the supporting structure that etches minimally in an anisotropic etching process operation on the supporting structure.

29. A microsieve according to claim 28, wherein the supporting structure contains a silicon crystal and the longitudinal directions run substantially parallel to respective {111} planes of the silicon crystal.

30. A filter assembly provided with a microsieve according to any one of claims 22 to 29, wherein the microsieve is positioned such that in use a cross-flow fluid flow is guided in a plane parallel to a surface of the microsieve at such an approach angle relative to the longitudinal directions of the first and second membrane surfaces that the approach angle is substantially identical for the first and second membrane surfaces.

31. A filter assembly provided with a microsieve according to any one of claims 22 to 29, provided with a clamping plate which is clamped against the microsieve, wherein the clamping plate is provided with protrusions which extend to the supporting structure on the microsieve, wherein the

protrusions in a plane parallel to the membrane surfaces form linear structures which extend at an angle different from zero relative to the longitudinal directions of the first and second membrane surfaces.

32. A filter assembly according to claim 31, wherein the clamping plate is provided with one or more supply openings and/or drain openings which are provided opposite the supporting structure.

33. A filter assembly according to claim 31 or 32, provided with a plurality of supply openings and a plurality of drain openings in the clamping plate, wherein between each pair of successive linear structures at least one of the supply openings and one of the drain openings are provided.

34. A filter assembly according to claim 33, wherein the supply openings and/or drain openings are positioned in the clamping plate such that imaginary connecting lines between successive supply openings and/or drain openings make angles different from zero with the longitudinal directions of the membrane surfaces.

35. A filter assembly provided with a microsieve according to any one of claims 22 to 29, provided with a clamping plate which is clamped against the microsieve, and provided with one or more supply openings and/or drain openings which are provided opposite the supporting structure, wherein at least one of the supply openings and/or drain openings extends through the clamping plate at an angle with a normal to the surface of the filter plate.

36. A method for manufacturing a microsieve provided with a supporting layer and a membrane layer with pores, in which method openings are etched in the supporting layer with a wet anisotropic etching process at the membrane surfaces in the membrane layer, and a substantially isotropic etching step is performed after the wet anisotropic etching step, for rounding off an angle in the supporting structure that has formed as a result of the wet anisotropic etching.